

PAT-NO: JP405186949A  
DOCUMENT-IDENTIFIER: JP 05186949 A  
TITLE: NONWOVEN BODY WEAR AND PRODUCTION THEREOF

PUBN-DATE: July 27, 1993

INVENTOR-INFORMATION:

NAME COUNTRY  
NAKANISHI, MOTOYASU

ASSIGNEE-INFORMATION:

NAME COUNTRY  
SUZUKI SOGYO CO LTDN/A

APPL-NO: JP04129532

APPL-DATE: April 22, 1992

INT-CL D04H001/54 , A41D019/00 , A41D027/26 , A41D031/00 ,  
(IPC): A42B001/00 , A43B010/00 , A43B017/00 , A43B019/00 ,  
A43B023/02 , A61F013/06

US-CL-CURRENT: 156/180 , 264/126

ABSTRACT:

PURPOSE: To obtain the subject wear of light weight and good fit feeling by spraying the core mold with self-bonding fibers to cover the core surface, then removing the core mold.

CONSTITUTION: The core mold 3 is rotated around the shaft 4, and sprayed with self-bonding fibers 14. After the cloth body 2 is formed, the rotation shaft is detached from the driving unit and the core mold is removed from the cloth body whereby a nonwoven fabric wear such as nonwoven shoe 1 is obtained.

COPYRIGHT: (C)1993,JPO&Japio

DERWENT- 1993-270130

ACC-NO:

DERWENT- 200042

WEEK:

*COPYRIGHT 2008 DERWENT INFORMATION LTD*

TITLE: Nonwoven cloth body for producing shoes, hat etc. obt'd. by  
fitting core to rotary device, covering core with self-  
adhesive fibre and removing core

INVENTOR: NAKANISHI M

PATENT-ASSIGNEE: SUZUKI SOGYO KK[SUZUN]

PRIORITY-DATA: 1991JP-321124 (November 8, 1991)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE
--------	----------	----------

JP 05186949 A	July 27, 1993	JA
---------------	---------------	----

JP 3074549 B2	August 7, 2000	JA
---------------	----------------	----

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO	APPL-DATE
--------	-----------------	---------	-----------

JP 05186949A	N/A	1992JP-129532	April 22, 1992
--------------	-----	---------------	----------------

JP 3074549B2	Previous Publ	1992JP-129532	April 22, 1992
--------------	---------------	---------------	----------------

INT-CL-

CURRENT:

TYPE	IPC	DATE
CIPP	<u>A41</u> <u>D</u> <u>19/00</u>	20060101
CIPS	<u>A41</u> <u>D</u> <u>27/26</u>	20060101
CIPS	<u>A41</u> <u>D</u> <u>31/00</u>	20060101
CIPS	<u>A42</u> <u>B</u> <u>1/00</u>	20060101
CIPS	<u>A43</u> <u>B</u> <u>17/00</u>	20060101
CIPS	<u>A43</u> <u>B</u> <u>19/00</u>	20060101
CIPS	<u>A43</u> <u>B</u> <u>23/02</u>	20060101
CIPS	<u>A43</u> <u>D</u> <u>21/00</u>	20060101
CIPS	<u>A61</u> <u>F</u> <u>13/06</u>	20060101
CIPS	<u>D04</u> <u>H</u> <u>1/54</u>	20060101

ABSTRACTED-PUB-NO: JP 05186949 A

BASIC-ABSTRACT:

Core material consisting a metal, wood, plaster or synthetic resin of desired shape is made and fitted to a rotary device. Self adhesive fibre is ejected to cover the core. The core is then removed. Nylon, polyester, polypropylene or polyurethane can be used as the self-adhesive fibre selectively.

USE/ADVANTAGE - The process can make body equipping goods having adequate fitness easily and with low cost

TITLE- NONWOVEN CLOTH BODY PRODUCE SHOE HAT OBTAIN FIT CORE  
TERMS: ROTATING DEVICE COVER SELF ADHESIVE FIBRE REMOVE

DERWENT-CLASS: A96 D22 F04 P21 P22 P32

CPI- A11-C05; A12-C03; A12-C04; A12-S05G; D09-C04B; F02-C01; F02-  
CODES: C02; F04-C05;

ENHANCED- Polymer Index [1.1] 017 ; P0000;

POLYMER-  
INDEXING: Polymer Index [1.2] 017 ; K9416; Q9999 Q7976 Q7885;  
J9999 J2904;

Polymer Index [2.1] 017 ; P0635\*R F70; P0839\*R F41;  
P1592\*R F77; S9999 S1183 S1161 S1070;

Polymer Index [2.2] 017 ; G0044 G0033 G0022 D01 D02  
D12 D10 D51 D53 D58 D83 R00964 1145; H0000; S9999  
S1183 S1161 S1070; P1150; P1343;

Polymer Index [2.3] 017 ; ND01; N9999 N6020 N6008;  
J9999 J2915\*R; J9999 J2904; Q9999 Q7067 Q7056; Q9999  
Q7103 Q7056; K9416; B9999 B5301 B5298 B5276; ND07;

POLYMER-MULTIPUNCH-CODES-AND-KEY-SERIALS:

Key Serials: 0223

0229

0231

0248

Multipunch Codes:

1283  
1288  
1294  
2344  
2486  
2713  
2717  
2751  
2820  
3252  
3258  
371  
376  
50&  
623  
629  
651  
723  
03-  
04-  
041  
046  
050  
141

143

150

32&

371

376

50&

54&

597

600

619

620

651

664

665

688

720

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: 1993-120657

Non-CPI Secondary Accession Numbers: 1993-207372

**Disclaimer:**

This English translation is produced by machine translation and may contain errors. The JPO, the INPIT, and those who drafted this document in the original language are not responsible for the result of the translation.

**Notes:**

1. Untranslatable words are replaced with asterisks. (\*\*\*\*).
2. Texts in the figures are not translated and shown as fig.

Translated: 22:05:46 JST 02/21/2008

Dictionary: Last updated 02/16/2008 / Priority: 1. Fiber/Clothing material / 2. Chemistry / 3. Industrial Products

**[Document Name] Description**

**[Title of the Invention]** The body wearing article made of a nonwoven fabric, and its manufacture method

**[Claim(s)]**

**[Claim 1]** The body wearing article made of a nonwoven fabric which removes a core material from what sprayed the self-adhesive property fiber on the core material surface, and is characterized by things.

**[Claim 2]** It is the body wearing article made of a nonwoven fabric according to claim 1 characterized by said body wearing articles being shoes.

**[Claim 3]** The manufacture method of the body wearing article made of a nonwoven fabric characterized by spraying a self-adhesive property fiber from a nozzle plate to a core material, covering the core material surface, and removing a core material after that, moving or rotating relatively a core material and the nozzle plate which attends this.

**[Detailed Description of the Invention]**

[0001]

[Objects of the Invention]

[Industrial Application] This invention relates to a body wearing article and its manufacture methods, such as shoes, a hat, a supporter, and a corset.

[0002]

[Background of the Invention] Although various things, such as shoes and a hat, are one of those with which people equip the body, since people's form is of infinite variety, if these body wearing article is made to fit a part of body completely and it tries to build it, much time and rating are needed.

[0003] There are problems, like in order for especially shoes to cut out planate cloth and a planate hide generally, to solidify them combining these, to carry out sewing of this and to make it the form of shoes, there are many difficulties of material picking, and processes and man days, and time is taken, and there is a fixed limit in a weight saving. Then, although it had become one technical problem how what fitted the body about such a body wearing article is built efficiently, the present condition is that neither the product with which it is still satisfied of this, nor the manufacturing method is put in practical use.

[0004]

[The technical matter which tried development] This invention is made in view of such a background, considers the fitted feeling to the body in the first place, and its manufacture efficiency is still better and it tries development of the body wearing article made of a nonwoven fabric which can attain a weight saving, and its manufacture method.

[0005]

[Elements of the Invention]

[Means for Achieving the Goal] That is, the first body wearing article made of an invention slack nonwoven fabric concerning this application removes a core material from what sprayed the self-adhesive property fiber on the core material surface, and the feature of the things is carried out.

[0006] Moreover, in addition to said requirements, the second body wearing article made of an invention slack nonwoven fabric concerning this application changes considering said body wearing articles being shoes as a feature.

[0007] Furthermore, moving or rotating relatively a core material and the nozzle plate which attends this, the manufacture method of the third body wearing article made of an invention slack nonwoven fabric which starts this application again sprays a self-adhesive property fiber from a nozzle plate to a core material, covers the core material surface, and changes considering removing a core material after that as a feature. these invention -- said purpose -- it is going to attain -- it is a thing.

[0008]

[Function of the Invention] Since the body wearing article made of a nonwoven fabric concerning this invention removes a core material on the core material surface and changes from what sprayed the self-adhesive property fiber to it, it is good, and it is lightweight. [ of the fit nature to the body ]

[0009] moreover, [ moving or rotating relatively a core material and the nozzle plate which attends this / the method of spraying a self-adhesive property fiber from a nozzle plate to a core material, covering the core material surface, and removing a core material after that ]

There are neither material picking nor time and effort, such as sewing, and the high body wearing article of fit nature can be manufactured easily and efficiently to each body part only by changing a core material.

[0010]

[Working example] This invention is explained based on the work example of illustration below. Codes 1 are nonwoven fabric shoes which are examples of the body wearing article made of a nonwoven fabric concerning this invention, the cloth object 2 with which the whole made the fiber adhere mutually and made it become entangled is mostly molded into the form of shoes in the shape of a bag, and this thing changes.

[0011] The manufacture method of such nonwoven fabric shoes 1 is explained based on drawing 1 - 3 below. The request-shaped core material 3 is created first and this core material 3 is attached to the primary axis of rotation 4 of rotation equipment 5. In addition, so that a core material 3 can be easily removed in the final stage of manufacture of the nonwoven fabric shoes 1 although a core material 3 may be produced by any, such as a metal, a tree, gypsum fibrosum, or a synthetic resin For example, the contour of a core material 3 may be constituted from a synthetic resin film, and what can extract air in the final stage by changing the inside of it into a hollow state, a sponge-like thing, etc. may be applied.

[0012] Moreover, rotation equipment 5 combines and has the secondary axis of rotation 4a equipped with other hand-of-cut components other than the primary axis of rotation 4. On the other hand near the rotation equipment 5, melt spinning equipment 6 is formed. A hopper 7, a cylinder 8, and Di 9 are opened for free passage inside, this thing is united, as shown in drawing 1, a screw 10 is arranged in a cylinder 8, and a heater 11 is arranged around a cylinder 8. Moreover, Di 9 is the shape of a double nozzle, the nozzle plate 12 which is open for free passage in said cylinder 8 by porosity is formed in the center, and the hot blast port mouth 13 is formed in the circumference. In addition, although the hot blast port mouth 13 is not illustrated, it is connected to the hot blast development part.

[0013] Next, a core material 3 is made to face the nozzle plate 12 in such melt spinning

equipment 6, rotation equipment 5 is made to drive in this state, both the primary axis of rotation 4 and the secondary axis of rotation 4a are rotated for a core material 3 in three dimensions as an axis, and the self-adhesive property fiber 14 is sprayed on a core material 3 from the nozzle plate 12 in this state.

[0014] Incidentally what is pasted up mutually is said in the self-adhesive property fiber 14, without what fibrosed from the nozzle plate like nylon, polyester, and BORIPURO pyrene intervening adhesives. Such a fiber raw material is applied to the thermal bond method, the Sepang bond method, or melt-blown \*\* etc. which is a process of a nonwoven fabric, and it can be called the method of this invention applying the process of a nonwoven fabric so to speak, therefore manufacturing the body wearing article of complicated shape. In addition, functional agents, such as a deodorant, an aromatic, antibacteria medicine, an insecticide, a \*\*\*\* agent, or an insecticide, are mixed in the fiber raw material, and you may make it the nonwoven fabric shoes 1 made using this equipped with these functions.

[0015] Moreover, the self-adhesive property fiber 14 chooses suitably according to the purpose. For example in respect of absorptivity, namely, nylon > polyester > polypropylene, Since there is a difference of characteristics like polyester > nylon > polypropylene in respect of a heat-resisting property and a dye affinity, hardness, chemical resistance, weatherability, weight, etc. change with kinds, these character is judged synthetically and the most desirable fiber is chosen according to the purpose. In addition, of course, materials other than nylon, polyester, and polypropylene are sufficient as for example, polyurethane etc.

[0016] The self-adhesive property fiber 14 is uniformly sprayed on the grade which cannot be seen, and if the cloth object 2 which has a certain amount of thickness is formed, the primary axis of rotation 4 in a core material 3 is removed from rotation equipment 5, and as a core material 3 is extracted, it will be further removed from the inside of a cloth object 2. Although the nonwoven fabric shoes 1 are completed once by this, this thing can be used as shoes as it is, and also as shown, for example in drawing 4, this can be cut, a part for a bottom can be used as an insole of other shoes, and the heel, \*\*, a shell, and a tiptoe part can also be used as protection putt of other footwear, respectively. In addition, it can change with the body wearing article made of a nonwoven fabric which such an insole and protection putt also require for this invention.

[0017] Moreover, the self-adhesive property fiber 14 may spray the fiber from which only one kind is not sprayed, in addition elongation differs, or it combines that from which that from which thickness is different, the thing from which the quality of the material differs, or a color differs, and you may make it spray it.

[0018] Moreover, although it is only what sprayed the self-adhesive property fiber 14 on the surroundings of a core material 3 by the above manufacture method As shown in drawing 5, during this spray work For example, shock absorbing material, such as a gel substance, leather, and a waterproofing film, If waterproofing material, reinforcers, such as the part 19 which can change, and a hard or half-rigid synthetic resin board, and the part 19 that can change are applied to the surface, the self-adhesive property fiber 14 is again sprayed from it and a part 19 is wrapped in in a cloth object 2 The high nonwoven fabric shoes 1 of buffer nature, waterproofness, or hardness nature can be obtained.

[0019] Furthermore, if a shape memory board is applied as such a part 19, it can change into the form of a request after inclusion of a part 19, or the body wearing article which has a fitted feeling more can be offered according to each delicately different individual's bodily shape.

[0020] Furthermore, [ a possibility of sports shoes of wearing out by friction etc. like the inside portions of a tiptoe part or skate shoes, and the other putt of various games / a big part ] Thermal spray materials, such as various metals and Ceramics Sub-Division, can be melted at high temperature, and the droplet layer can be made to put on the surface of the above-mentioned body wearing article. While the abrasion resistance of the part which performed such [ incidentally ] treatment improves very much, even if it exercises, a droplet layer becomes together with a covering part, and it can carry out modification flattery and does not carry out OFF disadvantage [ of the circumference ]. Moreover, in the embossed surface which formed many projections, for example like a sole, if covering of such a droplet layer is given to the standup side of a projection, it can be made into the embossed surface excellent in slide resistance. In addition, as a metaled thermal spray material, there are zinc, aluminiums, these alloys and carbon steel, low alloy steel, stainless steel, HABITTO, molybdenum, brass, brass, aluminium bronze, manganese bronze, copper, a nickel aluminum night, Monel, nickel, tin, lead, pewter, a Wood metal, etc.

[0021] Next, that it is easier to wear nonwoven fabric shoes, it carries out or the method which has ornamented enough and is carried out is explained below. In forming a sole 15 in the nonwoven fabric shoes 1 first What [ used sponge layers such as EVA, as the sole as shown in drawing 6 (a) ], That in which the nonwoven fabric sheet which consists of the fiber of thermoplastics carried out thermal melting arrival, the solid thin layer-like film was formed in as shown in drawing 6 (b), and the skid projection which the ink which changes from thermoplastics to the surface further hardened was formed can be stuck on the bottom of the nonwoven fabric shoes 1, and it can be considered as a sole 15. In addition, the manufacture method of the latter sole 15 is indicated in detail to the "sole which uses an embossed sheet, its manufacture method, and this" for which these people applied on Heisei 3(1991) September 6 in collaboration with ASICS CORPORATION.

[0022] Moreover, the weld 16 which carried out thermofusion of some cloth objects 2, and made it weld is made to form in the surface of the nonwoven fabric shoes 1, as shown in drawing 7, and by formation of this weld 16, that portion can be made into a pattern or can also be made into a reinforcement part. Furthermore, another member may be stuck in the stage which is still carrying out thermofusion, or weld 16 is formed in the end face of the nonwoven fabric shoes 1, and you may make it increase the firmness of shoes to such weld 16, as shown in drawing 8.

[0023] Furthermore, in consideration of the ease of wearing of shoes, as shown in drawing 9, it cuts deeply to a cloth object 2, and 17 and the punching part 18 are formed, the field tape 19 and a string 20 are formed in this portion, and it can do that extension is free. In addition, let the nonwoven fabric shoes 1 be a final product after heat-treating the shoes surface and an inside and preparing apparent appearance as a smooth field.

[0024] By giving processing in the middle of manufacture, the ornament after completion, etc. as mentioned above, the nonwoven fabric shoes 1 can make the inner boots for ski boots, the marathon shoes for a game, and TUSHUZU a product final as general shoes, such as common sports shoes made into the start, and business shoes. Moreover, this invention is applicable in addition to shoes as well as sporting goods about garments, such as a hat and shoulder putt, such as a body wearing article of medical relation, such as a body wearing article, and a supporter, a corset, a putt portion [ in / rider wear tights, a baseball mask, shin

guards, etc. / further ], and a glove.

[0025]

[Effect of the Invention] [ moving or rotating relatively a core material and the nozzle plate which attends this in this invention ] Since spray a self-adhesive property fiber from a nozzle plate to a core material, the core material surface is covered, a core material is removed after that and a body wearing article is manufactured, only the part which a product is lightweight, has a fitted feeling to the body, and does not need troublesome processes, such as cutting sewing of a hide, can perform efficient manufacture.

[Brief Description of the Drawings]

[Drawing 1] It is the side view showing the manufacture state of the nonwoven fabric shoes which are examples of the body wearing article made of a nonwoven fabric of this invention.

[Drawing 2] It is the perspective view expanding and showing an important section same as the above.

[Drawing 3] It is the explanatory view showing the manufacture method of this invention taking the case of nonwoven fabric shoes.

[Drawing 4] It is the explanatory view showing the work example which used some completed nonwoven fabric shoes as other insoles or protection putt of shoes.

[Drawing 5] It is the longitudinal section showing the work example which prepared shock absorbing material etc. and the part which can change in the inside of the cloth object which constitutes nonwoven fabric shoes.

[Drawing 6] It is the explanatory view showing two sorts of work examples which prepared the sole in nonwoven fabric shoes.

[Drawing 7] It is the side view showing the work example which formed weld in some cloth objects which constitute nonwoven fabric shoes, and used this as a pattern.

[Drawing 8] It is the explanatory view showing the work example which turned up the end of nonwoven fabric shoes, formed weld in the end, and increased holdout.

[Drawing 9] They are the perspective view showing the state where the cut and the punching part were formed in the cloth object which constitutes nonwoven fabric shoes, and the perspective view showing the work example which formed the field tape or the string in this portion.

[Explanations of letters or numerals] 1 Nonwoven Fabric Shoes 2 Cloth Object 3 Core Material 4 Primary axis of rotation 4a Secondary axis of rotation 5 Rotation equipment 6 Melt spinning equipment 7 Hopper 8 Cylinder 9 Di 10 Screw 11 Heater 12 Nozzle plate 13 Hot blast port mouth 14 Self-adhesive property fiber 15 Sole 16 Weld 17 Cut 18 Punching part 19 Field tape 20 String

---

[Translation done.]

(19)日本国特許庁 (J P)

## (12) 公 開 特 許 公 報 (A)

(11)特許出願公開番号

特開平5-186949

(43)公開日 平成5年(1993)7月27日

(51)Int.Cl. <sup>5</sup>	識別記号	庁内整理番号	F I	技術表示箇所
D 0 4 H 1/54		Z 7199-3B		
A 4 1 D 19/00		A		
	27/26	C		
	31/00	E		
A 4 2 B 1/00				

審査請求 未請求 請求項の数3(全 6 頁) 最終頁に続く

(21)出願番号 特願平4-129532

(22)出願日 平成4年(1992)4月22日

(31)優先権主張番号 特願平3-321124

(32)優先日 平3(1991)11月8日

(33)優先権主張国 日本 (J P)

(71)出願人 000129404

鈴木総業株式会社

静岡県清水市宮加三789番地

(72)発明者 中西 幹育

静岡県富士市天間1461-47

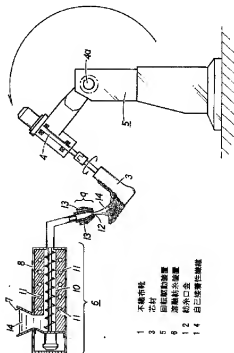
(74)代理人 弁理士 東山 喬彦

(54)【発明の名称】 不織布製身体装着品並びにその製造方法

## (57)【要約】

【構成】身体へのフィット感がよい身体装着品を効率良く製造することを目的となされた不織布製身体装着品に関するものであって、芯材3表面に自己接着性繊維14を吹き付けたものから芯材3を取り去って成ることを特徴とする。

【効果】芯材3とこれに臨む紡糸口金12とを相対的に移動ないし回転させながら、紡糸口金12から芯材3に対して自己接着性繊維14を吹き付けて芯材表面を覆い、その後芯材3を取り去って身体装着品を製造するから、製品は軽量で且つ身体へのフィット感があり、また皮の裁断縫製等の面倒な工程を必要としない分だけ効率良い製造を行なうことができる。



## 【特許請求の範囲】

【請求項1】 芯材表面に自己接着性繊維を吹き付けたものから芯材を取り去って成ることを特徴とする不織布製身体装着品。

【請求項2】 前記身体装着品は靴であることを特徴とする請求項1記載の不織布製身体装着品。

【請求項3】 芯材とこれに臨む紡糸口金とを相対的に移動ないし回転させながら、紡糸口金から芯材に対して自己接着性繊維を吹き付けて芯材表面を覆い、その後芯材を取り去ることを特徴とする不織布製身体装着品の製造方法。

## 【発明の詳細な説明】

## 【0001】

## 【発明の目的】

【産業上の利用分野】本発明は靴、帽子、サポータ、コルセット等の身体装着品並びにその製造方法に関する。

## 【0002】

【発明の背景】人が身体に装着するものには靴、帽子等種々のものがあるが、人の体型は千差万別であるため、これら身体装着品を身体の一部に完全にフィットさせて造らうとすれば、多くの時間と作業量が必要となる。

【0003】特に靴は一般に平面状の布や皮を裁断し、これらを組み合わせ立て化し、これを縫製して靴の形状にするため、材料取りの困難さ、工程・工数が多く時間が掛かり、また軽量化には一定の限界があることなどの問題点がある。そこでこのような身体装着品については身体にフィットしたものをいかに能率的に造るかが一つの課題となっていたが、未だこれを満足する製品や製造法は実用化されていないのが現状である。

## 【0004】

【開発を試みた技術的事項】本発明はこのような背景に鑑みなされたものであって、身体へのフィット感を第一に考え、更に製造効率が高く、軽量化を図ることができる不織布製身体装着品並びにその製造方法の開発を試みたものである。

## 【0005】

## 【発明の構成】

【目的達成の手段】即ち本出願に係る第一の発明たる不織布製身体装着品は、芯材表面に自己接着性繊維を吹き付けたものから芯材を取り去って成ることを特徴して成る。

【0006】また本出願に係る第二の発明たる不織布製身体装着品は、前記要件に加えて前記身体装着品は靴であることを特徴として成る。

【0007】更にまた本出願に係る第三の発明たる不織布製身体装着品の製造方法は、芯材とこれに臨む紡糸口金とを相対的に移動ないし回転させながら、紡糸口金から芯材に対して自己接着性繊維を吹き付けて芯材表面を覆い、その後芯材を取り去ることを特徴として成る。これら発明により前記目的を達成せんとするものである。

## 【0008】

【発明の作用】本発明に係る不織布製身体装着品は、芯材表面に自己接着性繊維を吹き付けたものから芯材を取り去って成るものであるから、身体へのフィット性が良く、軽量である。

【0009】また芯材とこれに臨む紡糸口金とを相対的に移動ないし回転させながら、紡糸口金から芯材に対して自己接着性繊維を吹き付けて芯材表面を覆い、その後芯材を取り去る方法では、材料取りや、縫製等の手間がなく、芯材を変えるだけで各身体部位にフィット性の高い身体装着品を容易に且つ効率的に製造することができる。

## 【0010】

【実施例】以下本発明を図示の実施例に基づいて説明する。符号1は本発明に係る不織布製身体装着品の一例である不織布靴であって、このものは全体が繊維を相互に付着させ絡み合わせた布体2が靴の形態にほぼ袋状に成型されて成る。

【0011】このような不織布靴1の製造方法について以下図1〜3に基づいて説明する。まず所望形状の芯材3を作成し、この芯材3を回転駆動装置5の一次回転軸4に取り付ける。尚、芯材3は金属、木、石膏又は合成樹脂などのいずれで作製してもよいが、不織布靴1の製造の最終段階で芯材3を容易に取り去ることができるように、例えば芯材3の外形を速凍フィルムで構成し、その中を中空状態として最終段階で空気を抜きとることができるものや、スポンジ状のものなどを適用してもよい。

【0012】また回転駆動装置5は、一次回転軸4の他に、他の回転方向成分を具えた二次回転軸4aを併せ有する。一方回転駆動装置5の近傍には溶融紡糸装置6が設けられる。このものは図1に示すようにホッパー7、シリング8及びダイ9が内部で連通されて一体となり、シリング8内にはスクリュー10が、またシリング8の周囲にはヒータ11が配置される。またダイ9は二重のノズル状となっており、中央には多孔で前記シリング8に連通する紡糸口金12が形成され、その周囲には熱風噴出口13が形成される。尚、熱風噴出口13は図示しないが熱風発生部に連絡している。

【0013】次にこのような溶融紡糸装置6における紡糸口金12を芯材3に臨ませ、この状態で回転駆動装置5を駆動させて芯材3を一次回転軸4及び二次回転軸4aの両方を軸として三次元的に回転させ、この状態で紡糸口金12から自己接着性繊維14を芯材3に吹き付ける。

【0014】因みに自己接着性繊維14とはナイロン、ポリエステル、ポリプロピレンのように紡糸口金から繊維化されたもの同士が接着剤を介在することなく互いに接着するものをいう。このような繊維原料は不織布の製法であるサーマルボンド法、スパンボンド法又はメルト

ブローン法などに適用されるものであり、従って本発明はいわば不織布の製法を応用して複雑形状の身体装着品を製造する方法といえる。尚、繊維原料には脱臭剤、芳香剤、抗菌剤、防虫剤、嫌虫剤又は殺虫剤等の機能性剤を混入しておき、これを用いて出来た不織布靴1がこれら機能を与えるようにしてもよい。

【0015】また自己接着性繊維14は目的に応じて適宜選択をする。即ち例えば吸水性の面ではナイロン>ポリエステル>ポリプロピレン、耐熱性の面ではポリエステル>ナイロン>ポリプロピレンのように特性の差があり、また染色性、硬さ、耐薬品性、耐水性、重量なども種類によって異なるから、これら性質を総合的に判断して目的に応じて最も好ましい繊維を選択する。尚、もちろんナイロン、ポリエステル、ポリプロピレン以外の材料（例えばポリウレタンなど）でもよい。

【0016】自己接着性繊維14が芯材3の表面が見えない程度に万遍なく吹き付けられ、ある程度の厚みを有する布体2が形成されたら、芯材3における一回転軸4を回転駆動装置5からはずし、更に布体2内から芯材3を抜くようにしてはすす。これにより不織布靴1が一応完成するが、このものをそのまま靴として使用できる他、例えば図4に示すようにこれを切取して底部分を他の靴の中敷として利用し、踵、踵、甲、爪先部分はそれぞれ他の履物の保護パットとして利用することもできる。尚、このような中敷や保護パットも本発明に係る不織布製身体装着品と成り得るものである。

【0017】また自己接着性繊維14は、一種類だけを吹き付けるのではなく、その他に伸びの異なる繊維を吹き付けたり、太さの違うもの、材質の異なるものあるいは色の異なるものなどを併せて吹き付けるようにしてもよい。

【0018】また以上の製造方法では芯材3の回りに自己接着性繊維14を吹き付けただけのものであるが、図5に示すようにこの吹き付け作業中に例えば樹脂物質、皮革、防水フィルム等の緩衝材、防水材と成り得るパーツ19や、硬質ないし半硬質の合成樹脂板等の補強材と成り得るパーツ19を表面にあてがい、その上から再度自己接着性繊維14を吹き付けてパーツ19を布体2内に包み込むようにすれば、緩衝性、防水性又は強度性の高い不織布靴1を得ることができる。

【0019】更にこのようなパーツ19として形状記憶板を適用すれば、パーツ19の組み込み後に所望の形状に変形できたり、微妙に異なる各個人の体形に合せて、よりフィット感のある身体装着品を提供できる。

【0020】また更には例えばスポーツシューズの爪先部やセータ靴のインソール部分、その他各種靴技のパット類のように、摩擦等によって擦り減る可能性が大きな箇所には、各種金属やセラミックス等の溶射材料を高温度で融かして、上記身体装着品の表面にその溶着層を被着させることができる。因みにこのような処理を施した

部位の耐摩耗性は非常に向上する一方、運動しても溶着層が被着部位と一緒に変形追随でき、周囲も切損しない。またこのような溶着層の被着を、例えば靴底のように突起を多数形成したエンボス面において、突起の立ち上がり面に施せば、防滑性に優れたエンボス面とすることができる。尚、金属の溶射材料としては、亜鉛、アルミニウム及びこれらの合金並びに炭素鋼、低合金鋼、ステンレス鋼、ハビット、モリブデン、黄銅、真鍮、アルミ青銅、マンガン青銅、銅、ニッケルアルミイット、モネル、ニッケル、錫、鉛、ハンダ、ウッド合金などがある。

【0021】次に不織布靴をより履きやすくしたり、装飾を施したりする方法について以下説明する。まず不織布靴1に靴底15を設ける場合には、図6(a)に示すようにEVA等のスポンジ層を靴底としたものや、図6(b)に示すように熱可塑性樹脂の繊維から成る不織布シートが熱融着して薄層状のソリッドフィルムが形成された、更にその表面に熱可塑性樹脂から成るインクが硬化した滑り止め突起が形成されたものを不織布靴1の底部に貼り付けて靴底15とすることができる。尚、後者の靴底15の製造方法等については、本出願人が株式会社アックスと共同で平成3年9月6日付で出願した「エンボスシート並びにその製造方法並びにこれを使用した靴底」に詳しく記載されている。

【0022】また不織布靴1の表面には、図7に示すように布体2の一部を熱溶融させて溶着させた溶着部16を形成させ、この溶着部16の形成により、その部分を模様としたり、補強部としたりすることもできる。更にこのような溶着部16には、未だ熱溶融していない段階で別部材を貼り付けたり、図8に示すように不織布靴1の端部に溶着部16を形成して靴の保形性を高めるようにしてもよい。

【0023】また更には靴の履き易さを考慮して、図9に示すように布体2に切り込み17や穿孔部18を形成して、この部分に面テープ19や紐20を設けて拉開自在とできるようにすることもできる。尚、不織布靴1は、靴表面や内面を熱処理して滑らかな面として外見上の見栄えを整えたうえで最終製品とする。

【0024】不織布靴1は以上のように製造途中での加工や完成後の装飾等を施すことにより、スキー靴用インナーブーツ、試合用マラソンシューズ、トウシューズを初めとする一般の運動靴、ビジネスシューズ等の靴一般として最終的な製品に仕上げるることができる。また本発明は靴以外にも帽子、肩パットなどの衣料に関する身体装着品やサボーク、ゴルフセット等の医療関連の身体装着品、更にはライダウェア、タイツ、野球マスク、レガース等におけるパット部分や手袋などのスポーツ用品にも同様に適用できる。

【0025】

【発明の効果】本発明では、芯材3とこれに貼付粘糸口金

5

とを相対的に移動ないし回転させながら、紡糸口金から芯材に対して自己接着性繊維を吹き付けて芯材表面を覆い、その後芯材を取り去って身体装着品を製造するから、製品は軽量で且つ身体へのフィット感があり、また皮の裁断縫製等の面倒な工程を必要としない分だけ効率良い製造を行なうことができる。

【図面の簡単な説明】

【図1】本発明の不織布製身体装着品の一例である不織布靴の製造状態を示す側面図である。

【図2】同上要部を拡大して示す斜視図である。

【図3】本発明の製造方法を不織布靴を例にとって示す説明図である。

【図4】完成した不織布靴の一部を他の靴の中敷または保護パットとして利用した実施例を示す説明図である。

【図5】不織布靴を構成する布体内部に緩衝材等と成り得るパーツを設けた実施例を示す縦断面図である。

【図6】不織布靴に靴底を設けた二種の実施例を示す説明図である。

【図7】不織布靴を構成する布体の一部に溶着部を形成し、これを模様として利用した実施例を示す側面図である。

【図8】不織布靴の端部を折り返し、その端部に溶着部を形成し保持性を高めた実施例を示す説明図である。

【図9】不織布靴を構成する布体に切り込み及び穿孔部

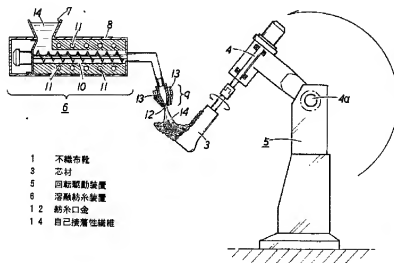
6

を形成した状態を示す斜視図、並びにこの部分に面テープ又は紐を設けた実施例を示す斜視図である。

【符号の説明】

- 1 不織布靴
- 2 布体
- 3 芯材
- 4 一次回転軸
- 4a 二次回転軸
- 5 回転駆動装置
- 6 溶融紡糸装置
- 7 ホッパ
- 8 シリンダ
- 9 ダイ
- 10 スクリュー
- 11 ヒータ
- 12 紡糸口金
- 13 熱風噴出口
- 14 自己接着性繊維
- 15 靴底
- 16 溶着部
- 17 切り込み
- 18 穿孔部
- 19 面テープ
- 20 紐

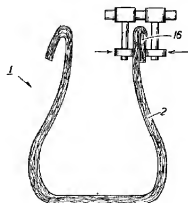
【図1】



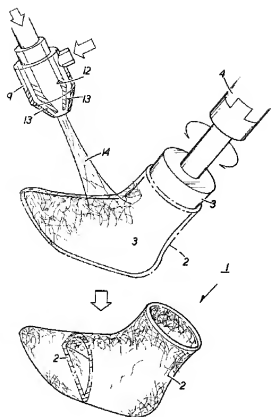
【図7】



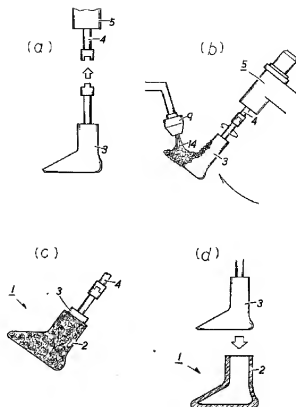
【図8】



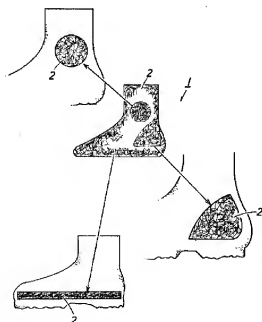
【図2】



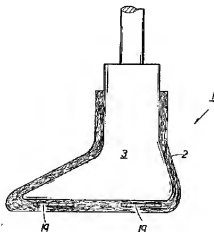
【図3】



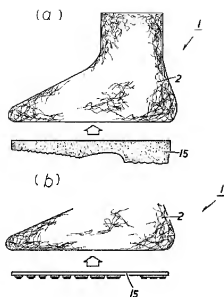
【図4】



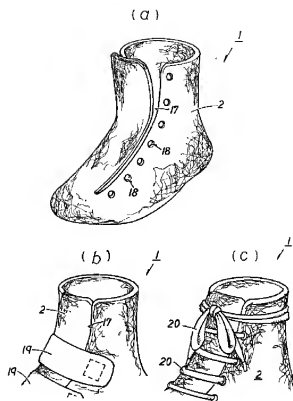
【図5】



【図6】



【図9】



フロントページの続き

(51)Int. Cl.<sup>5</sup>

A 4 3 B 10/00  
17/00  
19/00  
23/02  
A 6 1 F 13/06

識別記号 序内整理番号

1 0 1 D 8115-4F  
A 7421-4F  
7421-4F  
1 0 1 A 7421-4F  
A 7108-4C

F I

技術表示箇所